Space Weather Forecast

Issued on Tuesday, 11 April 2023 at 12:03 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of M-class flares (R1-R2 Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate with a Moderate-class flare peaking at 11/1016 UTC from the largest region on the disc. There are currently six sunspot regions on the visible disc. A region which is gradually rotating into view on the southeast limb gave an M-class flare yesterday, but currently consists of three small spots although further details may become apparent as it moves further onto the disc. The region in the southeast quadrant which gave the recent M-flare is the largest region on the disc. This consists of a large number of individual small spots. A further region near north centre disc has also shown some growth in the last 24 hours, but currently appears fairly simple. The other regions appear to be small and simple at the present time.
There have been no Earth-directed Coronal Mass Ejections (CMEs) observed in available imagery. We are awaiting imagery after the recent Moderate-class flare to see if any CME was produced, as this region is well placed to give an Earth directed CME.

Solar Wind / Geomagnetic Activity: The solar wind has shown a weak coronal hole fast wind enhancement over the last 24 hours. Wind speeds were initially 480-550km/s but eased slightly and are now around 420-480 km/s. The total Interplanetary Magnetic Field has been weak to moderate, peaking early in the period. The north-south component has been varying weakly but has been mostly northward directed. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary.
Solar Activity: Solar activity is expected to be Low to Moderate, with a chance of further isolated Moderate-class flares. The eastern side of the disc is the most likely source for this, with two notable sunspot regions.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs, although there is with a low possibility of a glancing arrival from a CME which left the Sun on the 7 Apr, either late Day 1 or early Day 2 (11 or 12 Apr). Ongoing slightly elevated or perhaps elevated winds are expected, with further coronal hole sourced enhancements possible, however any geomagnetic activity is likely to remain limited. Mainly Quiet activity expected with a chance of Unsettled intervals and a very slight chance of Active if any CME arrival occurs.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	40	40	40	40
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.